P568 The Role of *Streptococcus agalactiae* as a Urinary Pathogen in Adults

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Objectives: To study clinical significance of *Streptococcus agalactiae* (GBS) bacteriuria in urinary tract infections of adults.

Methods: We carried out a retrospective analysis of urinary tract infections in adults of the area of Avila (Spain) between 1994 and 1996. We studied epidemiological and clinical features of the patients with positive urine cultures for GBS.

Results: GBS accounted for 26% of gram positive urine culture isolations in 1994, 33.5% in 1995 and 35.5% in 1996; representing approximately 5% of all positive urine cultures in these years. We have studied 80 patients, of whom 88% were females, with a mean age of 47.6 years (20 to 86). The most frequently encountered predisposing factors were: cardiovascular disease (29%), diabetes mellitus (16%), chronic renal failure (9%), neoplasia (7.5%), and liver disease (6.25%); 12.5% had no predisposing factors. 45% of them had uropathy of some kind, like urinary tract abnormalities or litiasis. 30% had recurrent urinary infections. Clinical manifestations were related mostly to the lower urinary tract, but 43% were asymptomatic. Among nonpregnant adults 84% had at least one underlying condition or uropathy. All the cases had a favorable outcome, though 11% relapsed despite appropriate treatment.

Conclusions: GBS was the second gram positive isolated in urine cultures after *E. faecalis*. GBS bacteriuria has shown to have clinical significance in some cases, especially in patients with underlying conditions or uropaty.

Infective endocarditis and vascular infections

P569 Increased Risk of Pneumococcal Endocarditis in Patients over 50 Years Presenting with Pneumococcal Meningitis and Septicemia

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All the cases of pneumococcal endocarditis (PE) occurring between 1980 and 1995 at the CHUV were reviewed and correlated to the total number of positive pneumococcal blood cultures (BC) and CSF cultures. Seven PE were found. All were definite or probable according to the Duke's criteria. Six of the 7 patients were males and 5 had underlying conditions including 3 with alcoholism, 1 with neoplasia and 1 with rheumatoid polyarthritis. The mitral valve was involved in 4 cases and the aortic valve in 3. Mortality was 43%. The correlation with blood and CSF cultures was as follows.

BC	CSF	# Endocarditis/Total (%)		
		All ages	<50 years	>50 years
+	−	3/523 (0.6%)	1/188 (0.5%)	2/335 (0.6%)
−	+	0/ 30 (0%)	0/ 18 (0%)	0/ 12 (0%)
+	+	4/ 50 (8%)*	0/ 22 (0%)	4/ 28 (14%)*

*$P \leq 0.001$ when compared to positive blood cultures alone

PE was found in 1.8% of positive BC. However, patients with double positive BC and CSF cultures had a greater risk of PE compared to those with single positive cultures alone. This risk was increased 14-fold in all patients, and 24-fold in patients over 50 years ($P < 0.001$; IC 95% 4.6–125). Thus, while the overall incidence of PE was low, double positive BC and CSF cultures may be accompanied by PE in up to 14% of cases.

P570 Diagnosis of Infective Endocarditis Using the Duke and von Reyn Criteria in Patients in a Finnish Teaching Hospital

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Objectives: To compare the Duke and von Reyn criteria in diagnosing infective endocarditis (IE) in patients with no intravenous drug abuse.

Methods: 243 disease episodes in 222 patients treated with a diagnosis or suspicion of IE between the years 1980 and 1995 were evaluated using these criteria. The chi-square test was used in statistical analysis.

Results: By the *Duke criteria,* 114 (47%) episodes were classified as definitive and 92 (38%) as possible IE. In 37 (15%) episodes, the diagnosis of IE was rejected. Among the 114 episodes designated as definitive IE, the diagnosis relied on histopathological evidence in 64 cases and on mere clinical criteria in 50 cases. Of the 64 histologically proven cases, 46 were classified as definitive and 18 as possible by the Duke clinical criteria. None were rejected.

Using the *von Reyn criteria,* 64 (26%) episodes were classified as definitive, 31 (13%) as probable and 33 (14%) as possible IE. In 115 (47%) episodes, the diagnosis of IE was rejected.

Comparison between these two sets of diagnostic criteria showed that significantly ($p < 0.0001$) more of all 243 episodes were designated as definitive by the Duke criteria. Moreover, significantly ($p < 0.0001$) fewer of the 64 histologically verified cases of IE were rejected by the Duke clinical criteria than by the von Reyn criteria.

Conclusions: These results confirm the validity of the Duke criteria in diagnosing IE also in patients with no intravenous drug abuse.

P571 *Corynebacterium aquaticum* Subacute Infective Endocarditis in an Injection Drug User

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Bacteria that belong to the coryneform CDC were considered for a long time simple contaminants, but during the last decade they have been increasingly recognized as a cause of infectious processes in a variety of clinical settings. *C. aquaticum* is a motile weakly gram positive rod belonging to diphteroid corynebacteria. It's considered to be a saprophyte and/or a contaminant, whose usual habitat is natural water. *C. aquaticum* has only rarely been associated with clinical diseases, mostly in patients with indwelling plastic devices, impaired cellular defence or underlying immunologic disorder.

We describe a 39-year-old injection drug user (IDU), seronegative for HIV, with subacute infective endocarditis (IE) of the mitral valve caused by *C. aquaticum*. To our knowledge this is the first reported case of *C. aquaticum* IE in an IDU. There were no skin infections preceding IE. We consider intravenous drug use the main hazard of bacteremia in our patient, probably related to natural water injection or to contamination with the skin flora. The whole clinical course was indolent and uneventful and recovery was complete after teicoplanin i.v. for 6 weeks. As in previous reported cases, resistance to most antibiotics tested was observed. Epidemiology and pathogenic-

ity of this bacterial species are not well definited. This case highlights the potential pathogenetic role of coryneform bacteria in IDUs.

P572 Neurologic Manifestations of *Staphylococcus aureus* Endocarditis

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Purpose: To investigate the neurologic manifestations of infective endocarditis caused by *Staphylococcus aureus* in a nationwide population of non-drug addicts.

Patients and Methods: During the period from 1982 to 1991 a total of 8.514 cases of bacteremia with *S. aureus* were reported to the Staphylococcus Laboratory, Copenhagen. The medical records of cases of suspected infective endocarditis were retrospectively reviewed.

Results: A total of 260 cases from 63 hospitals fulfilled the diagnostic criteria proposed by Durack. Overall, 91 patients (35%) experienced neurologic manifestations. The most frequent neurologic manifestation was unilateral hemiparesis. 42% of the females had neurologic manifestations compared to only 30% of the males ($p = 0.06$). Cases with native mitral valve infection had a significantly higher frequency of neurologic manifestations compared to all other valvular involvement (44% versus 20%, $p = 0.02$). Only two of the patients with tricuspid valve infection and none of those with congenital heart disorder experienced neurologic manifestations. A neurologic manifestation occurred in 22 (35%) of the 63 episodes in which vegetations were detected on the echocardiograms, compared with 17 (26%) of the 65 episodes without vegetations ($p = 0.38$). The mortality was 74% in patients with major neurologic manifestations and 56% in patients without neurologic manifestations ($p = 0.008$).

Conclusions: Neurologic manifestations occur with a higher frequency in patients with native mitral valve infection. The presence of vegetations on echocardiograms is not a risk factor for developing neurologic complications. Mortality is increased in patients with neurologic manifestations.

P573 Fetal Endocarditis due to Group D Streptococcus

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Objective: The authors report a case of a mature newborn with transplacentally acquired *E. faec.* generalized infection, which occured due to fetal endocarditis.

Methods: Ethiological diagnosis was confirmed from the newborn's blood by agglutination quick test, and by bacterological culture of the maternal cervix discharge. It was confirmed by bacterological culture as well taken from the vegetation located on the atrial site of the tricuspid valve postmortem.

Results: The clinical signs of endocarditis was hidden by the symptoms of an hyperacute sepsis, therefore the primary source of the infection was not diagnosed. After a transitional improvement she died suddenly at the age of 5 weeks. The endocarditis was found unexpectedly during the autopsy. The vegetation was calcified, which process normally takes place at least 6 weeks.

Conclusions: No report in the literature was found concerning prenatally acquired *E. faec.* endocarditis in mature newborn. On the basis of our case we believe, that the well-known nosocomial *E. faec.* species can become pathogenic, therefore it should be considered like a pathogenic agent in a case of severe neonatal infection.

P574 Management of Pacemaker (PM) Lead Infection (LI) Based on Clinical and Transesophageal Echocardiography (TEE) Findings

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Objectives: To establish reliable clinical and echocardiographic criteria for the diagnosis of LI and to evaluate at a 6-months follow-up a therapeutic approach including early PM removal (PMR) based on predefinite clinical and TEE findings.

Methods: Study of all patients (pts) evaluated for LI at our Institution from 1987 to 1996, who had both transthoracic echocardiography (TTE) and TEE and in whom clinical and microbiological informations were sufficient. All received appropriate antimicrobials and the entire PM was removed when the pulse generator was the source of infection or in those who had vegetations on TEE (TEE+).

Results: 3 pts were excluded because of insufficient data. Thirty-one were evaluable: 30 (97%) had positive blood cultures (BC), 25 had late-onset infection (3.6 ± 3 years) and 6 had early/intermediate-onset infection (0.5 ± 0.8 months). The responsible microorganisms were staphylococci in 25 (81%) pts (*S. epidermidis* 15. *S. aureus* 8, coagulase negative staphylococci 2, methicillin resistance of 2 strains). TTE and TEE detected vegetations in 10 (32%) and 22 (71%) pts, respectively ($P = 0.005$). LI was recognized in 24 pts: 22 who met Duke criteria for endocarditis applied to PM and 2 who had BC and lead culture (LC) positive for the same agent. The 7 other pts had bacteremia from other source without PM involvement. Of the 31 pts, 7 had pulse generator infection (6 were TEE+, and all had positive LC at PMR and were cured) and 24 had infection from other or unknown source. Of these, one TEE-pt had PMR (negative LC) and 23 were treated according to the protocol: the 16 TEE+ pts who had PMR were cured (positive LC rate: 11/14 [79%]), and 6 (86%) of the 7 TEE- pts who had no early PMR were also cured. One pt had finally documented *C. glabrata* LI (late removal) and died of aortic endocarditis.

Conclusions: TEE was superior to TTE to detect vegetations, in 92% of LI. In bacterial infections, LI was present in all cases of bacteremia associated with pulse generator infection, and TEE-based PMR in the other cases appeared to be safe.

P575 Salmonella Aortitis: Report of 4 Cases and Review

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Objectives: To investigate clinical presentation and outcome of Salmonella aortitis (SA), in order to define patients at risk needing anti-microbial treatment of Salmonella enterocolitis.

Methods: Retrospective analysis of 4 patients and review of 112 published cases. Strict case definition including either recurrent positive blood cultures of Salmonella and an aortic aneurysm, or

	Own cases (n = 4)	Literature (n = 112)
Mean age/range	69/63–73	64/32–81
Female/male	0/4	18/94
Fever	100%	83%
Back/abdominal pain	25%/50%	46%/45%
Pulsatile abdominal mass	75%	29%
Salmonella in blood culture	100%	85% (n = 95)
Atherosclerosis/aortic graft	100%/0%	56%/6%
Diabetes mellitus/Cirrhosis	25%/0%	27%/8%
Medical treatment/survival	3/1	24/1
Surgical treatment/survival	1/1	88/54

Salmonella bacteremia with confirmed mycotic aneurysm at surgery or autopsy.

Results (see table): Overall, the most common species were *Salmonella typhimurium* (26%), *Salmonella enteritidis* (24%) and *Salmonella choleraesuis* (20%).

Conclusions: An important risk factor for SA is atherosclerosis. Due to the high mortality of SA, patients with atherosclerosis and Salmonella enterocolitis should be treated with quinolones even without documented bacteremia. In case of fever, blood cultures should be performed after stopping antibiotics, in order to detect recurrent bacteremia as a sign of aortitis.

P576 Is an Infection by *Chlamydia pneumoniae* a Risk Factor for a Cardiovascular Endpoint?

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Objectives: This prospective study tries to find out a link between an acute or chronic infection by *Chlamydia pneumoniae* and a cardiovascular event.

Methods: Serological tests of 58 patients and of 58 controls (age and sex matched) were analyzed for recent or past infections of *Chlamydia pneumoniae*. The second serological test was done 4 to 6 weeks later. Titers of IgG, IgM and IgA were determined by Microtiter indirect immunofluorescence test. The patients had suffered an acute myocardial infarction or a coronarographic proven angor in the week preceding the first serological examination.

All patients and controls were asked about their cardiovascular risk factors and about an upper respiratory tract infection during 6 weeks before their hospitalization.

Results: Patients with a coronary event had statistically significantly more histories of upper tract infections than controls ($p = 0.03$). 19/58 patients and 24/58 controls had an serologically proven infection (IgG, IgA, IgM) by *Chlamydia pneumoniae* ($p = 0.93$). Only 2 patients and 1 control had an acute infection by *Chlamydia pneumoniae*. This study could not confirm that an infection by *Chlamydia pneumoniae* is a risk factor for a cardiovascular event. The prevalence of positive serologies of *Chlamydia pneumoniae* in patients and controls were the same, and were similar to the prevalence in Europe. Our results don't confirm the findings of other studies. We think that a serological analysis alone might not be sensible enough to detect all upper respiratory tract infections by *Chlamydia pneumoniae*. It is likely that a PCR-test could give more information. Furthermore, other infectious agents may play a role in the pathogenesis of an acute cardiovascular event.

P577 Seroprevalence of Chlamydia pneumoniae in Coronary Heart Diseases

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Objective: The relationship of *Chlamydia pneumoniae (C. pneumoniae)* to coronary heart diseases and the generation of atherom plaques in coronary arteries has been suggested by seroepidemiologic studies and by observation of microorganisms in atheriosclerotic lesions by direct methods.

Methods: In this study, we investigated 58 serum samples of patients with coronary heart disease who undergone coronary angiography and a control group of 20 healthy subjects who were selected from asymptomatic patients. The investigation was made using the indirect immunofluorescent antibody assay (IIFA) in order to detect a possible relationship between coronary heart diseases and *C. pneumoniae* infections. The aim of this study was to determine seroprevalence of *C. pneumoniae* in coronary heart diseases. We accepted 1/100 and higher titers as seropositive. We determined whether or not patients with coronary heart disease had angina pectoris, myocardial enfarctus, hypertension and diabetes mellitus as possible risk factors.

Results: We found that 41 (75.9) patients with coronary heart disease symptoms were seropositive for C. pneumoniae and 10 (50%) in the control group. In 25 (54.4%) of the patients with coronary heart disease, *C. pneumoniae* infection was the only risk factor.

Conclusion: Although our findings suggest a positive relationship between *C. pneumoniae* and atheriosclerosis as other studies have shown, and since specific antimicrobial therapy for atheriosclerosis for these patients is not yet being used, it is important that physicians become aware of this relationship.

P578 Coronary Arteries Harbour Viable *Chlamydia Pneumoniae*

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Objectives: Indirect seroepidemiologic evidence suggests former infection with the intracellular bacterial pathogen *Chlamydia pneumoniae* to be a risk factor for coronary heart disease and acute myocardial infarction. This investigation was made to ensure recovery of viable *C. pneumoniae* from atheromatous plaques of stenotic human coronary arteries.

Methods: Coronary endarterectomy samples were examined for presence of genomic *C. pneumonia* DNA in a nested PCR ($n = 120$) and for the presence of viable chlamydiae by cell culture ($n = 60$). Patient sera were examined by a microimmunofluorescence assay.

Results: Viable, continuously replicative *C. pneumoniae* were recovered from 8% of atherosclerotic plaques. 24% of the coronary samples were positive for chlamydial DNA. Infection appeared limited to progredient atherosclerotic lesions. There was no apparent histologic distinction between infected and non-infected tissue. Serology was of no use in identifying the patients with endovascular infection.

Conclusions: Results demonstrate a substantial part of atherosclerotic coronary arteries to be infected with viable *C. pneumoniae*. A causal contribution of the endovascular infection to atherogenesis and coronary heart disease remains to be established.

Brucella, diphtheria, leptospira

P579 Microtechnique of 2-Mercaptoethanol Test in Serologic Diagnosis of Human Brucellosis

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Objectives: A comparative assessment of Miotechnique of 2-Mercaptoethanol test (MAT 2-ME) in comparison with 2-Mercaptoethanol test (2-ME) in serologic diagnosis of human brucellosis.

Methods: 2-ME was performed in tubes and MAT 2-ME in microplates. The sera were incubated at 37° C for 24 h. Titers ≥ 160 were considered as positive. These tests confirm only IgG as agglutinable antibodies in sera.

Results: A total of 223 sera were examined with both methods. Equal titers were in 212 (95%). The differences of two or more dilutions in 11 (5%) sera were statistically insignificant ($p > 0.05$).